Highway Construction Process

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Transportation Program Life Cycle

Long-Range Planning
Determine Needs

Program Development

Project Planning
Minimize Impacts

Project Development

Project Design
Design and Acquire ROW

Construction
Build Facility

Maintenance & Operations
Maintain Facility

Project Development Process

- Collaborative Process
- Input obtained from stakeholders
- Success of project depends upon approvals and agreements by others

Project Planning Major Steps

- Identify Transportation Purpose and Need
- Environmental & Community Features Identified
- Develop alternatives to minimize impacts
- Coordinate with project stakeholders (agencies & public)
- Select preferred alternative
- Completion and approval of NEPA documents generally conclude the project planning process

NEPA Documentation

- Environmental Impact Statements (usually required for new location projects)
- Environmental Assessment and Finding of No Significant Impacts (typically done for widening projects)
- Categorical Exclusions (typically done for bridge replacement projects)

Typical Project Durations (from beginning of planning to letting)

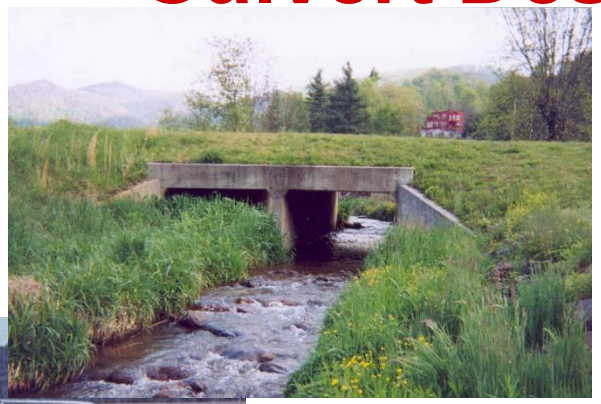
- Major new location projects (ten to twelve years)
- Widening projects (seven to eight years)
- Bridge projects (one to four years)

Project Design Major Steps

- Location and Surveys provides survey information and plan sheets are developed for chosen alternative
- Design is finalized
- Construction limits are determined
- Right of way limits set

Roadway Design

Culvert Design



Retaining Walls

Structure Design

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Acquire Right of Way

- Right of way acquisitions are completed before construction begins (or rights to enter property obtained)
- Utility Coordination is completed during right of way acquisition to adjust those utilities that are in conflict with roadway construction

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Obtain Environmental Permits

- New process helps speed this step up
  - Work during project development with stakeholders/permitting agencies to create design

- Purchase offsite mitigation when necessary

NCDOT Contract Letting

- All activities are completed before project can be let to construction
- Project contract information is prepared/advertised
- Contractors submit bids
- Low bids are determined
- Award of project is determined based on bids

Typical Project Construction Durations

- New Location – 3 ½ - 4 Years
- Major Pavement Rehabilitation - 2 ½ - 3 Years
- Urban Widening - 2 - 3 Years
- Bridge Replacement (low impact) - 6–18 months

Construction Process – Typical Steps

1) Surveying

2) Clearing

3) Erosion Control

4) Bottom Drainage

5) Rough Grading

6) Bridge Foundations

7) Top Drainage

8) Fine Grading

9) Base and Pave

10) Bridge Beams and Deck

11) Guardrail

12) Markings, Signs, Signals, ITS Devices

Survey

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WEIGHTED
CO·0132
NORTH CAROLINA
First in Flight
N.C. PERMANENT

Clearing

Erosion Control

Bottom Drain Pipe and Culverts

Rough Grading

Bridge Foundations

Top Drainage

Fine Grading

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Base and Pave

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Bridge Beams and Deck

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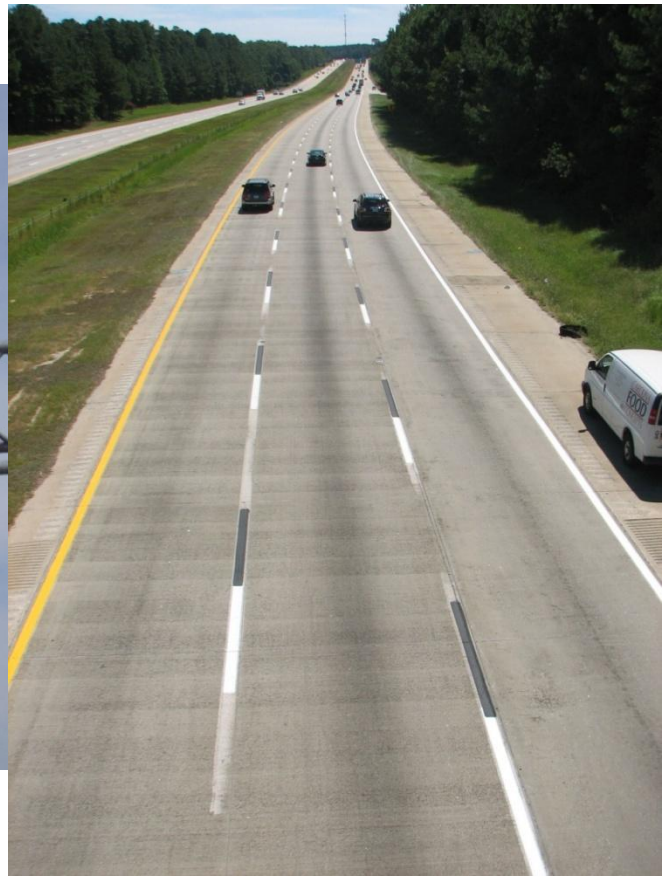
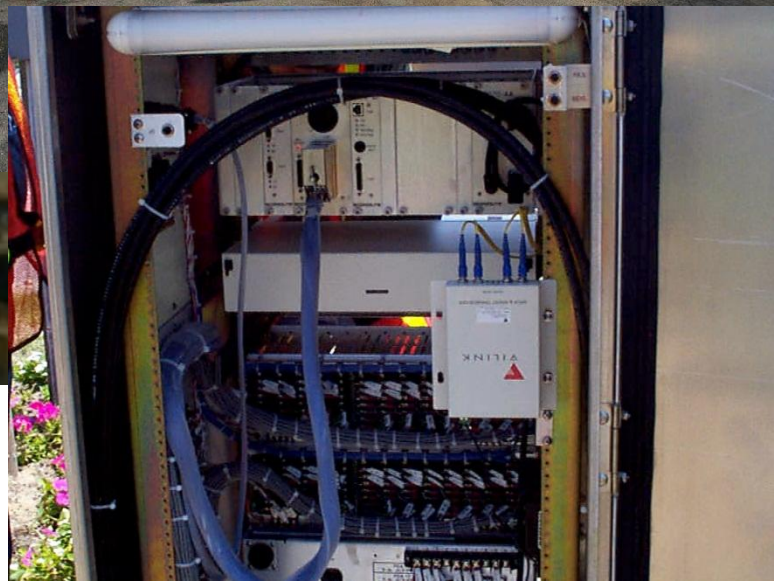
Guardrail

Pavement Markings, Signs, Signals



Intelligent Transportation Systems (ITS)



Preservation

Questions?